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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jennifer D Adamson
Shell Oil Company
Intellectual Property
P O Box 2463
Houston, TX 77252-2463

EXAMINER	
PRICE, CARL D	
ART UNIT	PAPER NUMBER
3749	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/521,882	HAASE, FRANK	
	Examiner	Art Unit	
	CARL D. PRICE	3749	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/30/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16,18,19 and 21-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16,18, 19, 21-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/30/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims **1-14, 16, 18-19** and **21-23** have been considered but are moot in view of the new ground(s) of rejection.

Applicant has amended the claims to be of a scope not previously considered. Consistent with applicant's argument that the prior art relied on in the previous office action fail to show, disclose and/or teach certain aspects of applicant's invention now recited in the claims filed on **10/30/2007,** applicant has amended the claims to include the following:

Applicant argues the following:

> "All of the independent claims have been amended to clarify that they are directed to providing or supplying to a blue flame burner "a Fischer-Tropsch-derived fuel comprising about 40 wt. % or more of a Fischer Tropsch product comprising about 80 wt % or more of iso-paraffins and normal paraffins," and "performing one or more procedure selected from the group consisting of heating water with the flue gasses by indirect heat exchange in a boiler and directly heating a space with the flue gasses." See claims 1, 14, 16, and 18. The amendments do not add new matter (see original claim 8 and paragraphs [0013]-[0014] and [0017]-[0018] of U.S. Publication No. 2005/0255416). The examiner cannot establish a case *of prima facie* obviousness of the amended claims over the cited references."
>
> "The examiner cannot establish an apparent reason to combine the cited references in the **fashion** claimed. The examiner attempts to meet this burden by broadly defining the field as the field of "combustion processes," arguing that "the person having ordinary skill in the art of combustion processes would have been, at the time of the invention, well aware of the concerns that all types of combustion processes **(i.e.- including internal combustion, industrial and residential)** producing relatively high levels, or indeed any carbon emissions (carbon monoxide and/or carbon dioxide), also result in a negative impact on the environment, when concentration levels rise in the atmosphere." Office action, p. 3. The examiner argues that "the person having ordinary skill in the art at the time of the invention would have been motivated toward applying **known and** readily available solutions to this problem." Office action, p. 3."
>
> "The examiner cannot establish (a) that it was known that a Fischer-Tropsch-derived fuel having the claimed properties would be efficient and effective as a fuel for blue flame burners, or (b) that a "Fischer-Tropsch-derived fuel comprising about 40 wt.% or more of a Fischer Tropsch product comprising about 80 wt % or more of iso-paraffins

and normal paraffins" was "readily available" as of July 19, 2002, or earlier (the priority of the application). It is debatable whether even Fischer-Tropsch-derived diesel fuels were *"known* and readily available" by July 2002. *See* Chevron Technical Review-Diesel Fuels (Chevron), explaining that, at least as of 1998, "[t]he *Fischer-Tropsch* process has not seen wide commercial use because it is expensive." Chevron, p. 22 (emphasis added).[2"]

In response to applicant's argument the examiner can only restate the examiner's previously explanation and understanding of the level of ordinary skill in the art and the reasons and motivation a person having ordinary skill in the art at the time of the invention would have used to arrive at the claimed invention.

The examiner acknowledges the well-established fact that carbon monoxide poses a threat to human safety, when too high a level occurs in a confined space. Indeed, the examiner further notes that the person having ordinary skill in the art of combustion processes would have been, at the time of the invention, well aware of the concerns that all types of combustion processes (i.e.- including internal combustion, industrial and residential) producing relatively high levels, or indeed any carbon emissions (carbon monoxide and/or carbon dioxide), also result in a negative impact on the environment, when concentrations levels rise in the atmosphere. In this regard, the person having ordinary skill in the art at the time of the invention would have been motivated toward applying known and readily available solutions to this problem. That is, whether the exhaust gases containing any noxious and/or harmful emissions including, for example, carbon particles, carbon monoxide, carbon dioxide, nitrogenous and sulfurous emissions, are expelled into a confined space or into the environment. Furthermore, regarding the buildup of carbon monoxide in enclosed environments (such as a living space) during operation of a combustion heating appliance, the mere fact that a combustion device using a fuel likely to generate relatively high concentrations of carbon monoxide is not itself does not preclude its operation. As outlined in the now attached Department of Energy Technical Fact Sheet titled "Combustion Equipment Safety – Provide Safe Installation for Combustion Appliances" (October 2000, DOE/GO-102000-1784) it is known to compensate for any undesirable effects of combustion emissions in spaces by at least providing means for monitoring emission levels and/or assuring proper ventilation in the space. Therefore, the examine does not agree that the teachings found in the prior art of **Suppes et al** (Compression-Ignition Fuel Properties of

Fischer-Tropsch Syncrude, Ind. Eng. Chem. Res. 1998, 37 2029-2038) in view of **US004764266 (Chen et al), US005807413 (Wittenbrink et al), US006787022 (Berlowitz et al)** would have at the time of the invention causes a person having ordinary skill in this field of endeavor to turn away from, and therefore ignore any implied or explicit benefits suggested and taught therein. More specifically, these prior art teachings not only explicitly recommend Fischer-Tropsch derived liquid fuels as advantageous to lowering combustion emissions, due to their inherent low sulfur, low nitrogen and very low aromatics content, but also define and describe the properties and composition of these fuels in a manner not unlike, and indeed, the same as the Fischer-Tropsch derived fuels specified in applicant's claims. Indeed, notwithstanding the discussion appearing herein above, applicant's remarks directed to diesel fuel are not commensurate with the scope of the claimed invention, since it appears that applicant's claimed fuel (Fischer-Tropsch derived) is the same as, or at least can not be distinguished from, the prior art diesel fuel.

Notwithstanding the teachings of merely because the examiner relies on prior art references which disc the benefits and advantages of Fischer-Tropsch derived liquid fuel in the form of diesel fuel, applicant's attention is directed to the now appended EPA fact sheet publication titled "Clean Alternative Fuels: Fischer-Tropsch" (EPA420-F-00-036 March 2002 www.epa.gov) which states the following:

> "**Fischer-Tropsch technology** converts coal, natural gas, and low-value refinery products into a high-value, clean-burning fuel. The resultant fuel is colorless, odorless, and low in toxicity. In addition, it is **virtually interchangeable with conventional diesel fuels** and can be blended with diesel at any ratio with little to no modification.
>
> **Fischer-Tropsch fuels offer important emissions benefits** compared with **diesel, reducing nitrogen oxide, carbon monoxide**, and particulate matter."

Also, with regard to the known important emissions benefits of Fischer-Tropsch derived fuels, applicant's attention is directed to at least the section headed "6. Ultra-Low-Aromatic Synthetic Diesel Fuel", beginning on page IV-17 of the now appended California Air Resources Board publication Titled "Appendix IV – Fuels Report: Appendix to the Diesel Risk Reduction Plan" (October 2000). Here it is noted that Fischer-Tropsch (F-T) diesel fuels, when compared

to non-Fischer-Tropsch derived fuel (CARB diesel), resulted in 36% less carbon monoxide emissions.

Furthermore, with regard to the known important emissions benefits of Fischer-Tropsch derived fuels, applicant's attention is also directed to now appended WO 01/83648 (Berlowitz et al) (11/08/2001) which, on page 17, discusses and shows (Table 6) that "Fuel A, the 'neat' Fischer-Tropsch demonstrated the lowest emissions in comparison to the other fuels." (Note: the term "neat" in the combustion fuel field of endeavor is understood to mean "pure").

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In view of the teachings of the newly cited prior art references discussed herein above as well as the teachings and reasons set forth in the examiner's action herein below, the examiner is unconvinced by applicant's arguments and therefore maintains the rejection of the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims **1-14, 16, 18-19** and **21-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **US004629414 (Buschulte)** in view of **Suppes et al** (Compression-Ignition Fuel Properties of Fischer-Tropsch Syncrude, Ind. Eng. Chem. Res. 1998, 37 2029-2038) in view of **US004764266 (Chen et al), US005807413 (Wittenbrink et al), US006787022 (Berlowitz et al)** and **US003808802 (Tanasawa),** as supported by any and all of the following **"Clean Alternative Fuels: Fischer-Tropsch"** (EPA420-F-00-036 March 2002 www.epa.gov), California Air Resources Board publication Titled **"Appendix IV – Fuels Report: Appendix to the Diesel Risk Reduction Plan"** (October 2000) and **WO 01/83648 (Berlowitz et al).**

US004629414 (Buschulte) show and disclose a liquid fuel blue flame burner relying on hot gases from the flame front flowing back outside the mixing tube to a recirculation port on the upstream end of the tube.

US004629414 (Buschulte) discloses:

> (3) Burners of the above-described type are known from, e.g. **German Pat. No. 27 00 671** and **German Offenlegungsschrift No. 29 18 416**.
>
> (4) **In these prior-art burners**, air is supplied to the fuel that is fed through a centrally-disposed nozzle. The air is supplied through openings provided in an orifice plate that surrounds the nozzle. Air and fuel are mixed in a mixing chamber downstream from the nozzle, the mixing chamber being situated in a mixing tube. In operation, a flame front is formed in the area of the downstream end of the mixing tube. **Hot gases from the flame front flow back outside the mixing tube to a recirculation port on the upstream end of the tube.**
>
> (11) An air duct is arranged ahead of the openings to provide an approximately parallel combustion air flow before the air passes through the openings and enters the mixing chamber. This reduces the air flow disturbances and prevents turbulence being carried over into the mixing chamber. Otherwise, the turbulence would persist in the flame and in the recirculating stream and would result in an increased combustion noise level.
>
> (2) This invention applies to many various **oil or gas** burners and is explained below based on an exemplary Bunsen type burner, i.e. a burner in which oil is burned completely with **blue flame**. **The invention is not, however, limited to such burner type.** The desired noise reduction may be obtained using the features defined herein, also in the case of, for instance, preheating burners or torches and **yellow-flame** burners.
>
> (Highlighting and Underlining Added)

US004364725 (Buschulte) show and disclose a liquid fuel blue flame burner relying on hot gases from the flame front flowing back outside the mixing tube to a recirculation port on the upstream end of the tube.

US004364725 (Buschulte) discloses:

> **Blue-flame oil burners** require that the oil reaching the point of combustion is completely vaporized before it reaches that point. The operation of an oil burner with a blue flame has the advantage that the burner is able to operate with very small excess of air over that required for complete combustion so that practically stoichiometric combustion takes place. Since combustion takes place with very small excess of air a very hot flame is produced which utilizes the energy content of the fuel optimally and leads to improved heat transfer. In addition, the waste gases **in comparison** with waste gases from an optimally adjusted burner with **a yellow flame** contain **extremely little harmful material** (soot, **NO.sub.x,** SO.sub.3).
>
> (17) With stoichiometric combustion in the flame tube 42 practically no free oxygen is present. This is another reason why the flame tube 42 may be made of heat resistant steel without risk of wear due to scaling or oxidation. Alternatively, the flame tube 42 may be made from a heat resistant ceramic material or a steel tube having a heat resistant ceramic coating may be used. It is possible to arrange for the flame tube to be cooled, for example, the **heating water.** In this case the flame tube may, for example, form part of the **heat exchange system of the boiler**. With cooled flame tubes, it is not necessary to use highly heat resistant materials.
>
> (15) **With blue flames**, **monitoring of the flame** cannot be carried out optically. **To guarantee a reliable automatic operation** of the blue-burning flame monitoring is possible by means of an **ionisation detector 44** which is **connected in known manner to a control device 46** by means of which, when the flame is extinguished, the supply of oil is cut off by closing the valve 18 and the motor 12 is switched off. After the flame has been produced the ignition device is also switched off by the control device in known manner.

Suppes et al (Compression-Ignition Fuel Properties of Fischer-Topsch Syncrude, Ind. Eng. Chem. Res. 1998, 37 2029-2038) teaches, from applicant's same liquid combustion fuel field of endeavor, burning light Fischer-Tropsch fuels or Syncrude (see page 2030, column 1, lines 27-36) in combustion apparatus such as internal combustion engines, as a **suitable alternative to diesel** and **gasoline fuels** (see page 2031, column 2, lines 4-35) in for example conventional diesel engines. Known light Fischer-Tropsch fuels disclosed by **Suppes et al** include the following properties:

- > 70% Fischer-Tropsch syncrude(see page 2031, column 2, lines 4-35), or 90% (by mass) of the light syncrude composition (see page 2029, column 2, lines 1-4);
- near-zero aromatic contents; and
- a boiling point of 170.6-314.9° C (Table 1).

US004764266 (Chen et al) teaches, from applicant's same Fischer-Tropsch derived fuel field of endeavor, a process for using or burning middle distillate Fischer-Tropsch derived fuel having typically boiling in the 165.degree. to 345.degree. C. (about 330.degree. to 650.degree.

F.) with lesser proportions of naphtha as a **"home heating oil"** (see column 10, line 16-34). This middle distillate fraction is, however, relatively **low in sulfur** and generally meets product specifications for use as a **light fuel oil**, e.g. **home heating oil, diesel** and **jet fuels**. US**004764266 (Chen et al)** acknowledges the presence of non-mineral fractions, or additives, in the Fischer-Tropsch distillate (e.g. – unconverted fractions).

US005807413 (Wittenbrink et al) teaches, from applicant's same Fischer-Tropsch derived fuel field of endeavor, that fuels produced by the Fischer-Tropsch process have essentially nil sulfur and nitrogen. See also, for example**, US006787022 (Berlowitz et al)** which teaches Fischer-Tropsch fuel characterized by "1) paraffins at least 90 + wt %, preferably at least 95 + wt %, more preferable at least 99 + wt % sulfur .ltoreq.10 ppm (wt), preferably <5 ppm, most preferably < 1 ppm nitrogen .ltoreq.10 ppm (wt), preferably <5 ppm, most preferably < 1 ppm aromatics <1%, preferably <0.1% cetane number >65, preferably >70, more preferably >75"). **US006787022 (Berlowitz et al)** yields of distillate fuels with excellent cold flow properties are produced from wax containing paraffins derived from the Fischer-Tropsch process to produce a full boiling range diesel fuel, preferably a **320-700** degrees F (i.e. **160-371** degree C) fraction, with the unique combination of high cetane number, very low cloud and cold filter plugging point (CFPP) performance and full boiling range cut exhibiting **superior emissions performance.**

US005807413 (Wittenbrink et al) discloses:

> (7) By virtue of using the **Fischer-Tropsch** process, the recovered distillate **has essentially nil sulfur and nitrogen**. These hereto-atom compounds are poisons for Fischer-Tropsch catalysts and are removed from the synthesis gas that is the feed for the Fischer-Tropsch process. (Sulfur and nitrogen containing compounds are, in any event, in exceedingly low concentrations in synthesis gas.) Further, **the process does not make aromatics**, or as usually operated, virtually no aromatics are produced. Some olefins are produced since one of the proposed pathways for the production of paraffins is through an olefinic intermediate. Nevertheless, olefin concentration is usually relatively low.
> (19) Although the studies in the three SAE papers did not deliberately vary either the density or the distillation profile of the fuels, these properties, of necessity, were varied as a natural consequence of changing the fuel cetane number and aromatic content. The results of these studies were that particulate matter (PM) emissions were primarily affected by the cetane number, sulfur content, oxygen content and aromatic content of the fuels. However, **, neither fuel density nor distillation profile had any effect on particulate matter (PM) emissions in these studies.**

(Highlighting and Underlining Added)

US003808802 (Tanasawa) teaches, from applicant's same liquid combustion fuel field of endeavor, that is known to operate combustors used for various purposes such as for home use, for industrial use, for gas turbines and for jet engines, and operating under either "yellow flame" or "blue flame" conditions, with "all kind of fuels, such as gas fuel, gasoline, lamp oil, light oil, heavy oil and the like" and "can be equally burned in a wide range of air -fuel ratio".

US003808802 (Tanasawa) discloses the following:

"(3) The present invention relates to a vortex combustor which can be used for various purposes such as **for home use**, for industrial use, for gas turbines and for jet engines."

"(4) 2. The Prior Art
"... moreover, a high intensity combustion is carried out in the combustion chamber of the vortex combustor, so that **all kind of fuels**, such as gas fuel, **gasoline, lamp oil, light oil, heavy oil and the like**, can be equally burned in **a wide range of air -fuel ratio**."

"(5) In case of the various conventional combustors, because of their structure and severe operating condition, only in the narrow range of air -fuel ratio, the combustion efficiency and the combustion intensity (the weight of fuel which can be burned per unit time in the unit volume,or calorific value of the said fuel; kcal/m.sup.3 -hr-atm) can be kept high in some degree. In the case of such combustors designed for gas turbines and for jet engines, it is necessary to supply a large amount of air into the combustion chamber in proportion to its output. If this air flow increases, combustion flame does not spread to the whole inside wall of the combustion chamber, and the mixture of air and fuel is not burned with high intensity, so the combustion efficiency and the combustion intensity becomes low. While there have been many studies about vortex combustors, a satisfactory combustor for practical use has not yet been provided, mainly because of the fact that these studies haven't cleared up some of the important characteristics of vortex combustors."

"(68) Since the fuel stays for a long period of time in the first and the second combustion chambers because of the swirling flow pattern, the combustion efficiency becomes as high as nearly 100 percent, whether the combustion condition in the combustion chamber is the **yellow flame** combustion or the **blue flame** combustion."

"(86) The vortex combustor of the present invention can be applied to various combustors using heat energy **for home** use or industrial use, and various combustors for heat motors using mechanical energy converted from heat energy, besides gas turbine engines for automobiles and for aircraft, which are described herein with relation to the first and second embodiments. For example, they can be **used as various combustors using heat energy, such a boilers, burners, steam motors, heating apparatus and water boilers**. They **can also be used as the combustors for** heat motors using mechanical energy which is converted from heat energy, such as various steam turbines, gas turbines, jet engines and steam engines, which **can be employed in many fields,** for example, for aircraft, ships, motor vehicles, electric generation and for industrial motive force in various works."
(Highlighting and Underlining Added)

"Clean Alternative Fuels: Fischer-Tropsch" (EPA420-F-00-036) which states the following:

> "**Fischer-Tropsch technology** converts coal, natural gas, and low-value refinery products into a **high-value, clean-burning fuel.** The resultant fuel is colorless, odor-less, and low in toxicity. In addition, it is **virtually interchangeable with conventional diesel fuels** and can be blended with diesel at any ratio with little to no modification.
>
> **Fischer-Tropsch fuels offer important emissions benefits** compared with diesel, reducing nitrogen oxide, **carbon monoxide**, and particulate matter."

California Air Resources Board publication Titled "Appendix IV – Fuels Report: Appendix to the Diesel Risk Reduction Plan" (October 2000). Here it is noted that Fischer-Tropsch (F-T) diesel fuels, when compared to non-Fischer-Tropsch derived fuel (CARB diesel), resulted in 36% less carbon monoxide emissions. See section "6. Ultra-Low-Aromatic Synthetic Diesel Fuel", beginning on page IV-17.

WO 01/83648 (Berlowitz et al) (11/08/2001) which, on page 17, discusses and shows (Table 6) that "Fuel A, the 'neat' Fischer-Tropsch demonstrated the lowest emissions in comparison to the other fuels." (Note: the term "neat" in the combustion fuel field of endeavor is understood to mean "pure").

In regard to claims **1-14, 16, 18-19** and **21-23**, for the purpose of reducing harmful combustion exhaust gas emissions (e.g. - sulfur, nitrogen, aromatics and carbon monoxide) formed during operation of known conventional home heating systems, it would have been obvious to a person having ordinary skill in the art to operate heating systems operated with a blue flame burner such as in **US004629414 (Buschulte),** or boiler heating systems as in **US004364725 (Buschulte),** or known conventional of the type directly heating a space by exhaust gases, to be fueled with Fischer-Tropsch fuel having no additives and "nil" or less than 1 ppm nitrogen and sulfur and low aromatic content and a density similar to that of home heating fuels (i.e. – between 0.65 and 0.8 g/cm^3 at 15° C), in view of the teaching of the **Suppes et al ,US004764266 (Chen et al)** and **US005807413 (Wittenbrink et al), US006787022 (Berlowitz et al), "Clean Alternative Fuels: Fischer-Tropsch"** (EPA420-F-00-036), **"Appendix IV – Fuels Report: Appendix to the Diesel Risk Reduction Plan"** (October 2000) and **WO 01/83648 (Berlowitz et al).** In addition, in view of the teaching of **US003808802 (Tanasawa),** it would have been obvious to a person having ordinary skill in the art to operate combustion systems used for various purposes such as for home use, for industrial use, for gas turbines and

for jet engines with all kind of fuels such as a **Fischer-Tropsch fuel** and which generally meets product specifications for use as a **light fuel oil**, e.g. **home heating oil**, **diesel** and **jet fuels**, wherein the burner is capable of operating in a wide range of air-fuel ratio, or "lambda".

In regard to for example claims 2-7, and 19, since the 1) "lambda" (assumed for the sake of examination to refer to the ratio of an oxidant to fuel necessary for combustion), 2) the number of burner operations per hour, and 3) the type of flame detector used to detect the burner flame, would necessarily depend on numerous design concerns such as the operational characteristics of a given burner and heating system installation and the type of oxidant being used, and would necessarily and predictably result from optimization of a given burner and heating system installation, the claimed "lambda" values can be viewed as nothing more than merely a matter of choice in design and/or a result-effective variable, i.e., a variable which achieves a recognized result. Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

In regard to claims 11-13, Official Notice is taken that it is well known to provide liquid fuels with odor or aroma (see for example US001944175) and color markers (See for example US005560855), and yellow flame coloring additives, for the purpose of aiding in readily identifying the fuel, and for aiding in making the flame visible (see for example US2002/0090585 or US006488726). Thus, in view of that which is well know in the art and for the known purpose, it would have been obvious to a person having ordinary skill in the art to modify the **US004629414 (Buschulte)** or **US004364725 (Buschulte)** fuel to include odor and color markers.

Conclusion

See the attached USPTO Form 948 for prior art made of record and not relied upon which is considered pertinent to applicant's disclosure.

THIS ACTION IS MADE FINAL

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

USPTO CUSTOMER CONTACT INFORMATION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARL D. PRICE whose telephone number is (571) 272-4880. The examiner can normally be reached on Monday through Friday between 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven B. McAllister can be reached on (571) 272-6785. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CARL D. PRICE
Primary Examiner
Art Unit 3749

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